APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,260	09/26/2003	Fang Wang	112056-0150	8811

24267   7590   10/02/2007
CESARI AND MCKENNA, LLP
88 BLACK FALCON AVENUE
BOSTON, MA 02210

EXAMINER
BRUCKART, BENJAMIN R

ART UNIT	PAPER NUMBER
2155	

MAIL DATE	DELIVERY MODE
10/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 August 2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

Claims 1-35 are pending in this Office Action.

Claims 26-35 are new.

The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. The Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

Response to Arguments

With regards to previously pending claims 1-35; applicant's arguments filed in the amendment filed 8/29/07, have been fully considered but they are not persuasive. The reasons are set forth below.

Applicant's invention as claimed:

Specification

The disclosure remains objected to because it contains references to related applications by outdated application numbers. Applicant is requested to update the application numbers with now patent numbers or publication numbers.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Regarding claim 30, the method of claim 29, "wherein determining that

the first server has been recovered is initiated by a client operation." The examiner can find no

mention of how the client initiates determining that a first server has recovered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 30 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the

written description requirement. The claim(s) contains subject matter which was not described

in the specification in such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 30, the method of claim 29, "wherein determining that the first server has been

recovered is initiated by a client operation." The examiner can find no mention of how the client

initiates determining that a first server has recovered.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 30 recites the limitation "Regarding claim 30, the method of claim 29, "wherein

determining that the first server has been recovered is initiated by a client operation." There is

insufficient antecedent basis for this limitation in the claim. The examiner can find no mention of

how the client initiates determining that a first server has recovered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis

for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8-12, 16-21, 26-31, 35 are rejected under 35 U.S.C. 102(b) as being anticipated by "A Highly Available Network File Server," Proceedings of the Winter 1991 USENIX Conference, Bhide et al, Jan 1991 (herein after "HA-NFS") (Applicant IDS).

Regarding claim 1, a method for failover of a first device to a second device in a storage network (HA-NFS: page 199; Introduction, 3rd paragraph), the method comprising steps of:

detecting a failure in the first device (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

initializing a second virtual port on the second device (HA-NFS: page 200; Architecture; para 1-2);

configuring the second virtual port with an identity of a first virtual port on the first device (HA-NFS: page 200, col. 2, para 1-2); and

servicing a set of disks owned by the first device at the second device through the second virtual port (HA-NFS: architecture: page 200, col. 2, para 1-2; Fig. 1).

Regarding claim 2, the method of claim 1 wherein the step of detecting a failure comprises the step of detecting a lack of a heartbeat signal from the first device at the second device (HA-NFS: page 201; para 3-4).

Regarding claim 3, the method of claim 1 wherein the step of detecting a failure comprises the step of initiating a failover command (HA-NFS: page 201; Take-over).

Regarding claim 4, the method of claim 1 wherein the step of configuring the second virtual port further comprises the steps of:

setting a node name of the second virtual port to a node name of the first virtual a port (HA-NFS: page 200; architecture; page 201; take-over); and

setting a port name of the second virtual port to a port name of the first virtual port (HA-NFS: page 200; architecture; page 201; take-over).

Regarding claim 8, the method of claim 1 further comprising the step of processing, by the second device, data access requests directed to the second virtual port (HA-NFS: page 201; takeover; para 2).

Regarding claim 9, the method of claim 8 further comprising the step of processing, by the second device, data access requests directed to a third virtual port, the third virtual port is associated with a physical port (HA-NFS: page 201; architecture; scsi bus communication).

Regarding claim 10, the method of claim 9 wherein the second virtual port is associated with the physical port (HA-NFS: Fig. 1; secondary interface).

Regarding claim 11. The method of claim 1 wherein the second virtual port is associated with one or more virtual ports associated with a physical port (HA-NFS: secondary interface is physical).

Regarding claim 12, a storage system for use in a storage system cluster (HA-NFS: page 199; Introduction, 3rd paragraph), the storage system comprising:

a physical port adapted to communicate over a network (HA-NFS: Fig. 1);

one or more virtual ports associated with the physical port (HA-NFS: page 200; Architecture; para 1-2);

means for adapting one of the virtual ports to assume a network identity of a port of a partner storage system in the storage system cluster (HA-NFS: page 200; Architecture; para 1-2);

means for acquiring control of a set of storage devices associated with the partner storage system (HA-NFS: page 200, para 1-2); and

means for servicing data access requests directed to the assumed network identity (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 16, the storage system of claim 12 wherein the port of the second computer comprises a physical port (HA-NFS: Fig. 1; first and secondary interfaces).

Regarding claim 17, the storage system of claim 12 wherein the port of the second computer comprises a virtual port (HA-NFS: IP address, hardware address).

Regarding claim 18, a computer readable medium, including program instructions executing on a computer (HA-NFS: page 199; Introduction, 3rd paragraph), the computer readable medium including instructions for performing the steps of:

detecting, by a first device, a failure of a second device in a cluster (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

initializing a first virtual port on the first device, the first virtual port being initialized with a network identity of the second device (HA-NFS: page 200; Architecture; para 1-2); and

assuming ownership, by the first device, of a set of storage devices associated with the second device (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 19, the computer readable medium of claim 18 wherein the step of initializing the first virtual port further comprises the steps of:

setting a node name of the first virtual port to a node name associated with a port on the second device (HA-NFS: page 200; architecture; page 201; take-over); and

setting a port name of the first virtual port to a port name associated with a port on the second device (HA-NFS: page 200; architecture; page 201; take-over).

Regarding claim 20, a storage system for use in a storage system cluster (HA-NFS: page 199; Introduction, 3rd paragraph), the storage system comprising:

a physical port adapted to communicate over a network (HA-NFS: Fig. 1);

a first virtual port associated with the physical port, the first virtual port adapted to accept

data access requests directed to the storage system (HA-NFS: page 200; Architecture; para 1-2);

and

a second virtual port associated with the physical port, the second virtual port adapted to

assume a network identity of a failed storage system (HA-NFS: page 200; Architecture; para 1-2;

take-over).

Regarding claim 21, the storage system of claim 20 wherein the second virtual port is further

adapted to process data access requests directed to the network identity of the failed storage

appliance (HA-NFS: page 201; Take-over).

Regarding claim 26, a method, comprising:

detecting a failure in a first server by a second server (HA-NFS: page 199; Introduction,

3rd paragraph), the first and second server each having at least one physical port adapted to

support one or more virtual ports (HA-NFS: page 200, Fig. 1), the first and second server having

a primary virtual port and a secondary virtual port accessible through the one or more physical

ports (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

activating the secondary virtual port on the second server (HA-NFS: page 200;

Architecture; para 1-2);

configuring the secondary virtual port on the second server with an identity of the

primary virtual port on the failed first server (HA-NFS: page 200, col. 2, para 1-2); and

servicing one or more storage devices owned by the first server through the secondary

virtual port on the second server (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 27, the method of claim 26, wherein detecting the failure is in response to

initiating a failover procedure during a scheduled maintenance on the first server (HA-NFS: page

201; Take-over).

Regarding claim 28, the method of claim 26, wherein detecting a failure in the first server further comprises: detecting a lack of a heartbeat signal from the first server at the second sever (HA-NFS: page 201; para 3-4).

Regarding claim 29, the method of claim 26, further comprising:

determining that the first server has been recovered (HA-NFS: page 201-202 re-integration);

terminating service requests to the secondary virtual port on the second server directed to the storage devices owned by the first server (HA-NFS: page 201-202 re-integration);

deactivating the secondary virtual port on the second server (HA-NFS: page 201-202 re-integration); and

servicing the storage devices owned by the first server through the primary virtual port on the first server (HA-NFS: page 201-202 re-integration).

Regarding claim 30, the method of claim 29, wherein determining that the first server has been recovered is initiated by a client operation (HA-NFS: page 202 col 2, para 4).

Regarding claim 31, a system comprising:

a first server having at least one physical port adapted to support one or more virtual ports (HA-NFS: page 201, HA-NFS Architecture, para 3-4), the first server also having a primary virtual port and a secondary virtual port accessible through the one or more physical ports of the first server (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

a second server having at least one physical port adapted to support one or more virtual ports, the second server also having a primary virtual port and a secondary virtual port accessible through the one or more physical ports of the second server (HA-NFS: page 201, HA-NFS Architecture, para 3-4), the second server configured to: (i) detect a failure of the first server (HA-NFS: page 201, HA-NFS Architecture, para 3-4), (ii) activate the secondary virtual port on the second server (HA-NFS: page 200; Architecture; para 1-2), (iii) configure the secondary virtual port on the second server with an identity of the primary virtual port on the failed first

server (HA-NFS: page 200, col. 2, para 1-2), and (iv) service one or more storage devices owned
by the first server through the secondary virtual port on the second server (HA-NFS:
architecture: page 200, col. 2, para 1-2; Fig. 1).

Regarding claim 35, a computer readable medium including program instructions when executed
operable to:

detect a failure in a first server by a second server (HA-NFS: page 201, HA-NFS
Architecture, para 3-4), the first and second server each having at least one physical port adapted
to support one or more virtual ports (HA-NFS: page 200, Eqn 1), the first and second server
having a primary virtual port and a secondary virtual port accessible through the one or more
physical ports (HA-NFS: page 200, Eqn 1);

activate the secondary virtual port on the second server (HA-NFS: page 200;
Architecture; para 1-2);

configure the secondary virtual port on the second server with an identity of the primary
virtual port on the failed first server (HA-NFS: page 200, col. 2, para 1-2); and
service one or more storage devices owned by the first server through the secondary virtual port
on the second server (HA-NFS: architecture: page 200, col. 2, para 1-2; Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a person
having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
manner in which the invention was made.

**Claims 5-7, 13-15, 22-25, 32-34 are rejected under 35 U.S.C. 102(b) as being
anticipated by "A Highly Available Network File Server," Proceedings of the Winter 1991
USENIX Conference, Bhide et al, Jan 1991 (herein after "HA-NFS") (Applicant IDS) in
view of U.S. Patent Publication No. 20040081087 by Shea.**

Regarding claim 5, the HA-NFS reference teaches the method of claim 4.

The HA-NFS reference fails to teach FC network.

However, the Shea reference teaches storage network comprises a Fibre Channel (FC) network and wherein the node name comprises a FC World Wide Node Name (Shea: page 1, para 11-12) because FC is a high performance, serial interconnect standard between servers (Shea: page 1, para 6).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of HA-NFS to include a FC network with node and port names as taught by Shea because FC is a high performance, serial interconnect standard between servers (Shea: page 1, para 6).

Regarding claim 6, the method of claim 4 wherein the storage network comprises a Fibre Channel (FC) network and wherein port name comprises a FC World Wide Port Name (Shea: page 1, para 11-12).

Regarding claim 7, the method of claim 1 wherein the first device and second device are storage systems (HA-NFS: Fig. 1).

Regarding claim 13, the storage system of claim 7 wherein the means for adapting one of the virtual ports to assume a network identity of a port of a partner storage system in the network further comprises:

means for setting a node name associated with the one virtual port to a node name of the port of the partner storage system in the storage system cluster (HA-NFS: page 200; architecture; page 201; take-over; IP address and hardware address; Shea: page 1, para 11-12); and

means for setting a port name of the one of the virtual ports to a port name of the port of the second computer in the network (HA-NFS: page 200; architecture; page 201; take-over; IP address and hardware address; Shea: page 1, para 11-12).

Regarding claim 14, the storage system of claim 13 wherein the node name comprises a Fibre Channel World Wide Node Name (Shea: page 1, para 11-12).

Regarding claim 15, the storage system of claim 13 wherein the port name comprises a Fibre Channel 2 World Wide Port Name (Shea: page 1, para 11-12).

Regarding claim 22, the storage system of claim 20 wherein the second virtual port assumes the network identity of the failed storage system by modifying a virtual port database entry (Shea: page 1, para 15; page 3, para 40).

Regarding claim 23, the storage system of claim 22 wherein the virtual port database entry comprises a node name field and a port name field (Shea: page 1, para 15, 11).

Regarding claim 24, the storage system of claim 23 wherein the node name field identifies a Fibre Channel (FC) World Wide Node Name associated with the second virtual port (Shea: page 1, para 14).

Regarding claim 25, the storage system of claim 23 wherein the port name field identifies a Fibre Channel (FC) World Wide Port Name associated with the second virtual port (Shea: page 1, para 11-14).

Regarding claim 32, the HA-NFS reference teaches the system of claim 31. The HA-NFS reference fails to teach a name and port name.

However, the Shea reference teaches am identity of the primary virtual port on the first server comprises a node name and a port name (Shea: page 2, para 19, 22; page 4, para 48) in order to address and transmit data to destination device (Shea: page 2, para 22-25).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of HA-NFS to include a FC network with node and port names as taught by Shea in order to address and transmit data to destination device (Shea: page 2, para 22-25).

Regarding claim 33, the system of claim 32, wherein the node name comprises a Fibre Channel
World Wide Node Name (Shea: page 1, para 11-12).

Regarding claim 34, the system of claim 32, wherein the port name comprises a Fibre Channel
World Wide Port Name (Shea: page 1, para 11-12).

REMARKS

Applicant has presented arguments directed to a limitation of the previously presented
independent claims with no amendments. Applicant has added new claims 26-35.

Request for Interview. The examiner called applicant on 9/25/07 and left a voicemail in
response to applicant's request for interview in the response. Applicant did not call the examiner
back before the action was formed.

Objection to the Specification. The objection with respect to the specification is
maintained. The positioning of the cited cases being incorporated by reference versus claimed
priority is withdrawn, however, many of the applications cited by application number require
updating by publication number or patent number. None of the cited cases are giving priority.

The Applicant Argues:

Applicant argues the HA-NFS reference does not show "configuring the second virtual
port with an identity of a first virtual port on the first device and servicing a set of disks owned
by the first device at the second device through the second virtual port."

In response, the examiner respectfully submits:

The HA-NFS reference does teach the claimed limitations and the rejection is
maintained. HA-NFS teaches configuring a second virtual port with an identity of a first virtual
port on the first device by the second device 'impersonating' the first device through the
secondary interface (HA-NFS: page 200, col. 2). HA-NFS page 201 bottom of col. 1 and col. 2
teaches the address assuming of the second device in order to handle the requests of the failed
first device. Applicant argues a difference is that there is only one physical interface as opposed

to two physical interfaces as depicted in the HA-NFS reference figure 1 and cites the background of the instant case. Applicant needs to specify in the claims the limitation of only one physical interface. The claim breadth is not limited to just one even in newly added claims. The HA-NFS reference still teaches a second virtual port being setup on the secondary interface because that interface assumes the identity of the failed server. Applicant is also encouraged to further define a virtual port versus a normal port and how they are operate differently. The examiner has taken the interpretation that the virtual is the impersonation of the first port in which data is conveyed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin R Bruckart whose telephone number 571-272-3982.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone numbers for the

organization where this application or proceeding is assigned are (571) 273-8300 for regular

communications and after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the examiner whose telephone number is 571-272-3982.

Benjamin R Bruckart
Examiner
Art Unit 2155

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER